

WHAT IS CLAIMED IS:

1. A method of determining a concentration of a component of a slurry, the method comprising the step of measuring change in refractive index associated with changes in concentration of the component of interest in a slurry.

2. The method in accordance with claim 1 wherein the slurry is selected from the group consisting of slurries for tungsten CMP and slurries for copper CMP.

3. The method in accordance with claim 1 wherein the change of refractive index is less than 0.001 units.

4. The method in accordance with claim 1 wherein the change of refractive index is less than 0.0001 units.

5. The method in accordance with claim 1 employing a refractometer having resolution of 0.00001 units.

6. The method in accordance with claim 5 wherein the refractometer is a bench-top unit.

7. The method in accordance with claim 1 wherein the component of interest is an oxidizing agent.

8. The method in accordance with claim 7 wherein the oxidizing agent is non-ionic.
9. The method in accordance with claim 7 wherein the oxidizing agent is hydrogen peroxide.
10. A method of controlling an oxidizer concentration in a slurry by employing the methods of claim 1 and using data obtained to adjust the oxidizer concentration accordingly.
11. A method of controlled abrasion of a surface employing a slurry, the slurry comprising an oxidizer, the method comprising using the steps of Claims 1.

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12. The method in accordance with claim 1, 10, or 11 wherein a solid state sensor operating on the principle of surface plasmon resonance was used for real-time monitoring of changes in refractive index.

13. A method of monitoring changes in a concentration of a reagent in a manufacturing process composition comprising the step of measuring changes in a refractive index of the composition.
14. The method in accordance with Claim 13 wherein the step of measuring comprises the step of measuring changes with a refractometer.
15. The method in accordance with Claim 13 wherein the step of measuring comprises the step of measuring changes with a surface plasmon resonance detector.
16. The method in accordance with Claim 13 wherein the semiconductor processing composition comprises a CMP slurry.
17. The method in accordance with Claim 13 wherein the reagent comprises an oxidizer.
18. The method in accordance with Claim 17 wherein the oxidizer comprises hydrogen peroxide.
19. The method in accordance with Claim 13 wherein the changes monitored are a decrease in the concentration of the reagent from deterioration.

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20. The method in accordance with Claim 16 wherein the CMP slurry is selected from the group consisting of tungsten and copper CMP slurries.